Frankly Speaking

Production must go on—

IN the present highly mechanized war, when American industry is a very definite part of our front line forces,—production must go on.

Continuous production requires ample transportation facilities for industrial workers enroute to their jobs. It also requires a continuous flow of materials into and away from essential manufacturing areas. When highways leading to these areas become congested, the free flow of labor and material is hampered —production is slowed up—the Nation's war effort is curtailed.

Recognizing these factors, the Institute of Traffic Engineers adopted a "Plan for the Immediate Improvement of War Production Transport." In the current issue of the American City magazine, the President of the Institute emphasizes the timely importance of this plan. He indicates that although total vehicular mileage will decrease as a result of restrictions on the sale of tires and motor vehicles, street traffic will continue to be a critical problem of increasing intensity in war production areas.

The Institute plan presents three basic steps which can be applied with relative simplicity and economy in war production areas throughout the country. To implement this plan the Institute is preparing a working manual which will adapt the principles contained in the Traffic Engineering Handbook to the present emergency.

To be effective, the three basic steps of the Institute plan must be undertaken by local authorities, but the cooperation of the general public will be essential. Now as in the past, however, the American public can be counted upon to give wholehearted cooperation in the time of national need when this need is recognized. Convince the average driver that it is his patriotic duty to "keep out of the way" and avoid increasing traffic congestion around war production areas—he will do his part.

The three basic steps can be expressed as three simple requests or suggestions to the patriotic driver who is willing to cooperate with his local authorities and "keep out of the way."

1. Avoid streets and highways leading to war production areas.
2. Whenever possible, confine driving to times when war production traffic is at a minimum.
3. Don't park on main thoroughfares—leave the car home or park out of the way.

W. Graham Cole
Secretary-Treasurer

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O. D. T. AND HIGHWAY TRAFFIC

by HON. JOSEPH B. EASTMAN

By the executive order of the President of the United States dated December 18, 1941, there was established in the Office of Emergency Management of the Executive Office of the President an "Office of Defense Transportation." The primary object of this action as stated in the preamble of the order was "to assure maximum utilization of the domestic transportation facilities of the Nation for the successful prosecution of the war." As defined in the order the term "domestic transportation" includes motor transport among the other kinds of transportation specifically listed.

The duties of the Office of Defense Transportation which most directly relate to street and highway traffic operations are the following:

a. Coordinate the transportation policies and activities of the several Federal agencies and private transportation groups in effecting such adjustments in the domestic transportation systems of the Nation as the successful prosecution of the war may require.

b. Compile and analyze estimates of the requirements to be imposed upon existing domestic transport facilities by the needs of the war effort; determine the adequacy of such facilities to accommodate the increased traffic volume occasioned by the war effort; develop measures designed to secure maximum use of existing domestic transportation facilities; and stimulate the provision of necessary additional transport facilities and equipment in order to achieve the level of domestic transportation services required; and in this connection advise the Supply Priorities and Allocation Board as to the estimated requirements and recommend allocations of materials and equipment necessary for the provision of adequate domestic transportation service.

c. Coordinate and direct domestic traffic movements with the objectives of preventing possible points of traffic congestion and assuring the orderly and expeditious movement of men, materials, and supplies to points of need.

To aid me in carrying out the duties under paragraph (b), so far as highway transportation is concerned, I have organized a Division of Motor Transport, headed by John L. Rogers, a member of the Interstate Commerce Commission, and a Division of Local Transport, headed by Guy A. Richardson, who was from 1933-1941 receiver and operating head of the Chicago Railways Company. The first of these divisions will concern itself primarily with intercity commercial transportation. The duties of the second I explained in a press release as follows:

> I have created the Division of Local Transport, which Mr. Richardson will head, because of the many and pressing problems of local transportation by rail, bus, and private automobile which have already arisen and will continue to arise in increasing volume in connection with the movement of workers to and from the plants and offices engaged in war work, and in connection with local transportation generally in the populous centers of the country. If the war effort is to be carried on smoothly and efficiently and without harassing delays, it is of immense importance

that these problems be dealt with effectively. It goes without saying that for the most part they must be dealt with directly by State and municipal authorities, but these problems are of such vital concern to the nation that I have felt that the Federal Government should provide leadership and help, and the Office of Defense Transportation is the appropriate place to center such work.

I have also set up a Division of Traffic Movement, to aid me in carrying out the duties under paragraph (c), and also paragraph (d), the duties of which I have explained in a press release as follows:

> A word should, I think be said about the functions of the Division of Traffic Movement. It was set up in response to the direction of the President that the Office of Defense Transportation
>
> > Coordinate and direct domestic traffic movements with the objective of preventing possible points of traffic congestion and assuring the orderly and expeditious movement of men, materials, and supplies to points of need.
> >
> > In cooperation with the United States Maritime Commission and other appropriate agencies, coordinate domestic traffic movements with ocean shipping in order to avoid terminal congestion at port areas and to maintain a maximum flow of traffic.
>
> These two paragraphs confer very extensive authority and impose an equally heavy responsibility. They relate to traffic movements by "railroad, motor, inland waterway, pipe line, air transport, and coastwise and intercoastal shipping." It is not my desire to exercise this authority unless there is clear need for such action, but in view of the heavy responsibility, I must be prepared to act if such need develops. In time of war, also, no one can foresee what changes in conditions may occur, perhaps in the form of sudden emergencies.
>
> I shall expect the Division of Traffic Movement, therefore, to become fully informed with respect to the organizations and methods by which both war and civilian traffic is now directed and controlled, the results which are being accomplished, and the possible dangers which lie ahead. And I shall expect the Division to be prepared to act, where action is necessary. Neither the military authorities nor the private shippers of the country, however, need fear that there will be any attempt to change existing methods, unless plain need is found to exist, nor, in that event, without taking counsel of those immediately concerned.
>
> We all realize that thus far the transportation agencies of the country have taken care of all traffic needs exceedingly well. We also realize that a very large factor in that record of success has been the splendid cooperation which the carriers have received from the shippers, both public and private. It would be a critical mistake to disturb that cooperation or to fail to promote and encourage even more effective cooperation for the future. The fact is, indeed, that to be successful in its efforts the Office of Defense Transportation must have the full cooperation of both the shippers and the carriers.

It is gratifying that the Institute of Traffic Engineers at its annual meeting three months ago foresaw the transportation problem which was to become imminent upon the outbreak of actual war and at that time undertook to aid the solution of the problem by

outlining a "plan for immediate improvement of defense production transport." Some such plan as this can do much toward aiding the Federal Government in attaining "the objective of preventing possible points of traffic congestion and assuring the orderly and expeditious movement of men, materials, and supplies to points of need." I am very glad that the Institute of Traffic Engineers is devoting so much attention to these matters and invite the cooperation and suggestions of the members of the Institute with respect to our functions.

An original article by Joseph B. Eastman, Director, Office of Defense Transportation, Executive Office of the President, Washington, D. C.

"TRENDS IN ASPHALT PAVEMENT DESIGN"

by BERNARD E. GRAY

IT is not long in years since the first asphalt street was built in Washington, D. C., in 1876, but in respect to traffic and its problems, there have been more changes than in all previous history. When this first street in Washington was laid, traffic was substantially the same in general character as that which took place over the streets of Rome 2,000 years earlier. The problem was to have a surface which was smooth, which gave footing under horse-drawn travel, and so far as Washington was concerned, a street which could be readily cleaned. Strangely enough, the loading under horse-drawn traffic was greater from the horse itself than from the vehicle, so far as impact was concerned. It was estimated that with a heavy team of horses at full trot, an impact of approximately 1,000 pounds was had under each hoof.

As the years passed, the type of traffic changed. Somewhat larger commercial wagons appeared with heavy steel tires and it became necessary to pass legislation limiting the amount of load which could be placed upon one wheel in order that the pavement be not damaged. This was more true, perhaps, of rural pavements where the type of road surface was either untreated gravel or macadam and in the spring the road surface softened. It was estimated that under a Watson Wagon, which carried two cubic yards of stone or gravel, the pressure under one rear wheel with its narrow band of contact area might be as much as 600 pounds per lineal inch of width.

Then the motor age really began, about 1910, and rapidly thereafter came the increasing volume of cars and trucks, also on hard tires but with the added stress of speed as compared with the horse-drawn vehicle. These early cars and trucks, in spite of their light weight, were highly destructive to the rural roads of the period, because of removal of the dust which was the binder of the road surface, and ravelling of the roadbed took place at a rapid rate.

During this transition period city streets were being rapidly improved with sheet asphalt surfaces, whereas very little improvement was taking place on rural roads, the macadam and gravel still being the standard of improvement. One reason for this lag in improving the country roads was the high cost of that period of constructing asphalt pavements, and it was not until the early 20's that technique in low-cost construction for rural highways began to develop. Surface treatment, then the road-mix procedure, and finally the adaptation of city types of pavement to the rural

highway took place as improved technique developed.

Along with this improved procedure for the manufacture of asphalt roads and streets, came probably the most remarkable change of all, and one which has had a profound influence upon the present design of streets and highways. This great change was the development of the balloon tire, which has completely revolutionized our ideas in respect to loading and in respect to reaction under traffic. Volume means nothing to an asphalt pavement because no fatigue is occasioned under repeated loadings. Where formerly it was considered that a low-cost surface was only suitable for 300 to 500 vehicles a day, today traffic may run to many thousands upon even a surface-treated road without damage. This is entirely due to the fact that the load per square inch under the balloon tire is small. As a matter of fact, this load under the heaviest truck now using the highway is less per square inch than found under that Watson Wagon of years ago.

However, with the reduction in load per square inch, there have come other destructive forces and these have their influence on the design of a surface. Formerly the slow moving, highly concentrated loads tended to further compress a pavement under traffic, and to densify it so that even though a coarse texture was had immediately after construction was completed, gradually with the passage of time, the open spaces closed up and a smooth, and sometimes unnecessarily smooth, surface developed. This led, of course, to a technique of construction procedure whereby the loss of the granular surface texture was anticipated by using coarse texture finishes, and a great deal was heard about how to make a non-skid surface. Since the advent of the balloon tire, this condition has entirely changed, although the lag in modification of construction technique has delayed the immediate change in construction procedure. The wheels of traffic no longer consolidate the surface. On the contrary, they tend to tear it up. The large area of tire in contact with the surface provides a tremendous suction and consequently the pavement tends to become roughened with the passage of time rather than more smooth.

This can be readily checked by any observer in looking at a modern sheet asphalt street. It will be noted that the sand grains stand out distinctly in the surface as the result of the wear of traffic which rapidly removes any film which may have been left after construction and steadily tends to produce a constantly more granular surface. Of course, with balloon tires, there is far less possibility of slipping than with the old hard cord tires and except for accidents caused largely by high speed, the item of skidding is rapidly disappearing from our traffic problems.

As these various factors come into the consciousness of the designer, the type of surface becomes modified accordingly. The Asphalt Institute, for example, is now completely rewriting its specifications, incorporating in the new ones the various developments of the past six or seven years. These developments are principally as follows:

(a) In plant-mixes of sheet asphalt, asphalt concrete and similar types, there is no longer the necessity of using a hard asphalt to provide stability in the pavement because the unit loading on the pavement is so much lighter than formerly, that the problem of shoving and rolling has almost entirely disappeared. The problem today is that of a slight drying-out which leads to cracking. The method of overcoming this cracking difficulty and still of providing an ample margin of stability is to use a

softer asphalt cement. For example, the earlier sheet asphalt pavements used paving grades of asphalt ranging from 30 to 50 penetration. Now, however, there are few places where asphalt harder than 60 to 70 penetration should be employed, and in many instances, a 70 to 85 penetration grade would be desirable. For asphaltic concrete where stability depends even less upon the asphalt cement but rather upon the interlocking of the aggregate particles, an asphalt of 70 to 100 penetration is increasingly employed.

(b) In regard to the design of asphaltic concrete, it is being found that many aggregates are suitable for use in this type of construction which formerly were excluded by the limitations of the specifications. This is due to the fact that certain aggregates when coated with asphalt become tougher than in an uncoated condition, and therefore will have sufficient stability to resist breaking under traffic and abrasion. This is an important discovery because in many parts of the country aggregates meeting the old specifications required importation, often for several hundred miles, whereas locally available there may be excellent aggregates for asphaltic concrete, such as certain sandstones and granites. Frequently, an aggregate will be suitable for base course wherein stability is the only factor, but which does not have sufficient resistance to abrasion to stand surface wear. Under these circumstances, all that is required is to import a sufficient amount of harder aggregate to construct the wearing course, thus having a composite pavement utilizing locally inexpensive materials for foundations and with minimum of imported aggregate for the top. This ability to use locally available materials has resulted in the construction of the so-called "black-base" foundations. "Black Base" may be either plant-mix or penetration macadam using hot asphalt cement as binder in each instance.

(c) Finally, one could not conclude a brief review of the development of asphalt pavements without paying tribute to the equipment manufacturer. The development of new alloys, as well as the improvement in power availability, has had a most profound influence on costs of manufacture. Ten years ago a study of asphalt plants revealed that on the average they only worked 50 per cent of the time, the other 50 per cent being spent in making repairs and adjustments. Today such breakdowns and delays are practically unknown. The vulnerable parts of a plant which required standby repair items for quick installation have all been reinforced with these new alloy steels so that they wear for years without breaking.

The methods of separation of aggregates insuring positive proportioning has come about through the use of the shaker type screen, in place of the old circular screen which was all too frequently overloaded. The oil burner for heating aggregates in the dryer as contrasted with the old coal burning methods is another improvement. The placing of individual motors for operation of the different units as contrasted with the transmission of power by pulleys and belts is another item, together with the availability of cheap electrical power or the ability to make power at the plant with Diesel motor-generator combination. The result of all of this improved equipment has been, not only to make production nearly 100 per cent efficient as compared with the 50 per cent of only ten years ago, but with it, of course, has come a tremendous reduction in costs. Asphalt pavements are placed today at from 50 to 100 per cent less cost than even in 1930.

Another item in respect to equipment has been the development of the mechanical finisher which now is be-

ing reflected in specification changes. Ten years ago hand raking was the only method available for the placement of asphaltic concrete and sheet asphalt. Even with the most expert handling, variation under the straight edge of as much as ⅜" in 10 ft. was considered a satisfactory smooth surface. About 1930, experiments were made of adapting a concrete finisher to asphalt work by The California State Highway Department. Subsequent improvement has been very rapid. The modern machine no longer requires forms on which to ride, thus eliminating form costs, the machine itself containing the side forms and supports which are necessary during the brief period when the asphaltic concrete is being placed and compressed. There is no need for a curing period with asphaltic concrete and thus the permanent side forms are unnecessary for support. Finally, in the last year or two, sighting devices have been installed on these finishers so that in resurfacing rough foundations or old roads, it is possible for the operator to so guide the machine as to take out irregularities in the old surface by varying the thickness of the pavement being placed and to follow any set grade design.

An interesting item in connection with the use of the finishing machine is the temperature of the mixtures being placed. When hand raking is employed, it is necessary to have the mixture delivered on the street or road at a sufficiently high temperature to prevent cooling below a certain point, while the raking is carried on. This temperature is usually between 300 to 350 degrees F. Today the placement with the finishing machine is so rapid that these high temperatures are neither necessary nor desirable, and in consequence, mixtures should be delivered to the street at temperatures ranging from 225 to 275 degrees F., according to the atmospheric temperature. This ability to place at lower temperatures means that rolling can be carried on immediately after the mechanical spreader, and furthermore of course, the costs incidental to heating and drying are reduced because it is no longer necessary to raise to the higher temperatures formerly required.

All these changes have come about as a result of that constant study and research which is so typical of American industry. We may look forward confidently that the years ahead will bring corresponding advances as we further develop our material and intellectual resources.

An original article by Bernard E. Gray, Chief Engineer, The Asphalt Institute, 801 Second Ave., N. Y. C.

TRAFFIC ACCIDENT EMERGENCY

by NATIONAL SAFETY COUNCIL

THE National Safety Council in its effort to assist those responsible for traffic safety in this war emergency has prepared three reports relative to *Protecting the Pedestrian*, *Winter Driving*, and *Intoxication* in the Traffic Accident Emergency. Three others are soon to follow on Public Safety Education, Traffic Engineering and Traffic Courts.

Earl J. Reeder (Mem. I.T.E.) Chief Traffic Engineer, in a letter to the editors of TRAFFIC ENGINEERING states: "The Committees in preparing these reports recognize that few can do much more of everything that they have been doing, without greater facilities or more personnel. However, they can do more of some things and may have to do less of others. The Com-

mittees have attempted to show those things concerning which much more will have to be done than in normal times."

PROTECTING THE PEDESTRIAN

Problem: There is a marked increase in fatal traffic accidents—16 per cent more numerous this year than last. The Defense Emergency has brought a general increase in pedestrian and vehicular traffic. There has been a marked increase in night traffic as a result of night shifts in industry and increased highway transportation. Many new industrial and residential areas have been developed without provision of pedestrian facilities. The population in many industrial defense areas has greatly increased. Many new drivers and poorly maintained vehicles operating under conditions of greater congestion and complexity.

Safety Measures: Aim special programs of pedestrian educational activities at people of all ages, groups and occupations. Give special instruction in safe walking practices that should be observed around defense industrial areas and training camps. Adopt safe walking slogans. Distribute pedestrian leaflets. Request defense industries to cooperate in reducing off-the-job pedestrian accidents by messages to employees in pay envelopes, on bulletin boards, through plant safety meetings and in house organs. Warn residents living along normally quiet streets, which are being used as by-passes of congested thoroughfares. Control traffic speeds by zoning and increase police supervision. Provide sidewalks, distinctly marked crosswalk lanes, and safety lighting immediately around defense production plants, military camps and reservations. Include sidewalks and safety lighting in the original design of new defense construction. Use traffic signals particularly suited for pedestrian control in areas near defense plants. Tighten enforcement of pedestrian regulations. Require motorists to drive with proper headlamps at night, rather than with parking lights. Urge pedestrians to follow carefully the prescribed instructions of the United States Office of Civilian Defense during blackouts. Give special police protection to pedestrians at peak traffic hours. Organize through the union set-up or otherwise, an adult "safety patrol" system. Obtain passage of adequate pedestrian control regulations. Recognize that in any program for the protection and control of pedestrians the responsibility of drivers towards pedestrians must be clearly understood and emphasized.

Special Instructions: Walk only on sidewalks wherever they are available. Along roads and streets without sidewalks always walk on the left facing traffic and step off the pavement for approaching vehicles. Cross streets only at cross-walks; observe traffic signals, and use extreme caution at all times. Cross roads at right angles and wait for approaching vehicles. Never depend on the driver seeing you at night. Wear or carry something white that will reflect light and take no chances with approaching traffic. Cross at intersections and in areas well lighted wherever possible.

WINTER DRIVING

Problem: Icy and snowy roadways produce traffic delays and accidents. The war emergency requires the best possible winter maintenance of highways. The normal problems of winter driving are accentuated by the importance of punctuality in arriving at working places and military camps. Inadequate housing in some areas has made it necessary for thousands of workers to drive considerable distances to and from their places of employment. The marked increase in motor vehicle traffic naturally has increased the accident exposure. The normal reduction in vehicular travel which has

heretofore occurred during the winter months is likely to be substantially less this year. A major winter hazard has been the longer hours of darkness. As adverse road and weather conditions exist for a relatively short time in most localities, the majority of drivers gain little driving experience under these conditions. The difficulty in obtaining new vehicles and the increased demand for transportation have lowered the general condition of vehicles.

Emergency Measures: Reduced speeds and the use of tire chains when roads are slippery will help keep traffic delays and accidents to a minimum. The best possible winter maintenance means the removal of ice and snow from the roadways as soon as possible after a storm, or treating the slippery surface with sufficient abrasive material for safe travel. City and state highway departments should make necessary improvements along secondary roads that have become heavily travelled. The winter maintenance program of a highway department should be adjusted to meet changes in traffic flow. Highway departments should provide the motoring public and commercial vehicle operators with regular reports on road conditions. Drivers should investigate weather and road conditions before starting trips. Traffic speeds should be decreased at night, particularly when the darkness is complicated by winter road and weather conditions. A traffic safety educational appeal should be made to all drivers. Owners should have their vehicles inspected periodically for safe brakes, windshield wipers, lights, tires, etc. Commercial vehicle operators should allow more time for regular routes and trips.

INTOXICATION

Problem: Conditions arising largely from defense activities are responsible for a 16 per cent increase in traffic deaths for the first 10 months of 1941. Drinking by drivers and pedestrians has contributed to the rising toll of injuries and deaths. Gasoline consumption figures show a 12 per cent increase in travel for the first nine months of 1941. The expansion of industrial activities has brought many new drivers into hazardous and congested traffic. Police traffic forces have been cut to reinforce sabotage and criminal details.

Emergency Measures: Conditions in the vicinity of defense plants and military posts should be investigated. Meetings of tavern owners and others selling intoxicating liquor should be held. Liquor control laws should be enforced strictly. A system of road blockade stations should be established. Police patrols should be instructed to check the condition of every person driving in a questionable manner. All police officers should be instructed to pick up intoxicated pedestrians. Persons suspected of being under the influence of intoxicating liquor should be questioned and examined immediately. Whenever facilities are available, chemical tests of blood, urine, or breath should be used. Whenever there is good evidence that a driver is under the influence of intoxicating liquor, he should be arrested for the charge, regardless of his position or influence. Prosecutors should give special attention to proper preparation of evidence in cases involving charges of driving while under the influence of intoxicating liquor. Posters, films, newspaper stories, leaflets, payroll enclosures and other educational media should be used. Military and naval establishments should be urged to set up a chemical testing system. Industrial plants, working in cooperation with the Federal Labor authorities, should consider the use of chemical tests. Military and navy personnel found driving while under the influence of intoxicating liquor in areas under government control should be prohibited from driving and should have their

cars impounded. Those with administrative authority for suspending drivers' licenses should give special attention to cases involving driving while under the influence of intoxicating liquor.

NEED FOR FEDERAL REGULATION OF COMMERCIAL MOTOR VEHICLES

by P. H. MATHEWS

PRIOR to September, 1939 there was a great surplus of transportation, which resulted in keen competition between the various agencies for the available traffic. This competition was very pronounced between the railroads and highway carriers for general traffic, especially the higher rated commodities; and between the railroads and waterways for the low-rated bulk traffic.

The competition became so intense that frequently legislation adverse to highway transportation carried the misnomer of "railroad sponsorship," irrespective of who supported or the purpose of such legislation.

With the defense program gaining momentum as industrial production climbs upward, available tonnage for transportation has increased somewhat, however, competition remains very lively. Speaking for the railroads, there is not nor will there be a shortage of transportation so long as we are able to secure materials for equipment and roadway. I am sure the same condition exists in the field of motor transportation. However, in spite of the increased tonnage being carried by all agencies of transportation, the legislative mill continues to grind—and special privileges are sought.

There is now pending before Congress, legislation affecting not only highway transportation but the property of the citizens of each state and the right of such citizens to self-determination and preservation of their property and inherent rights. That legislation is Senate Bill 2015, which invests in the Interstate Commerce Commission the authority to regulate the size and weight of commercial motor vehicles—such regulations of the Commission to supercede such state regulation.

The background of Senate Bill 2015 goes back many years. The demand for uniformity of sizes and weights of commercial motor vehicles started in the early 30's with the Harrisburg Conference and continued up to the passage of the Motor Carrier Act of 1935. Section 225 of that Act stated that the Interstate Commerce Commission should investigate the need for the Federal Regulation of sizes and weights of commercial motor vehicles, and report its findings to the Congress. Shortly thereafter, the so-called Trade Barrier campaign seemed to center on motor vehicle laws, particularly those relating to the size and weight with every means of communication being used to "advise" the public of the differences of these laws. To such extent that Congress, in the Transportation Act of 1940, requested the Interstate Commerce Commission to expedite its investigation on the subject.

The Commission invited all interested parties to file briefs stating their position. This Conference was one of the first official groups to record its opposition to Federal regulation of sizes and weights of commercial motor vehicles. Fifteen states filed briefs as did the Regional Highway Safety Conference, many cities, chambers of commerce, and others, opposing and cautioning against Federal control of

sizes and weights of commercial motor vehicles. The railroads filed a brief against such regulation. Those favoring Federal regulation were the for-hire motor carriers and their associations and several private shippers. Certain for-hire motor carriers found no need for such regulation.

The Commission filed its report with the Congress on July 31, 1941, concluding that Federal intervention is desired by the for-hire motor carriers, the War Department and Public Roads Administration; and that opposition to such intervention came first and foremost from the railroads and secondly, from the states, apparently overlooking the fact that 15 states thru responsible officials opposed such regulations and not a single state approved Federal regulation. The report made recommendations for legislation as embodied in Senate Bill 2015.

The Bill provides that upon complaint of any interested party, the Commission shall investigate the need for revisions of the size and weight legislation of a state and that after considering various factors such as highways, safety and economic conditions, the Commission may promulgate regulations for such size and weights as it deems justified. The bill specifically provides for increased size and weights and is designed for that purpose.

It is frequently stated that there are approximately 700,000 trucks operating for hire in intercity service. Therefore, for the benefit of 2% of the total registered vehicles, state laws are to be abrogated so that these few vehicles may operate for profit without interference. But does need exist that state laws are to be set aside?

The Public Roads Administration reported in its May 1939 issue of Public Roads that its surveys of road use showed that of 544,544 one-way trips made by trucks, only 11,100 trips exceeded 100 miles, this represented only 2% of the total trips sampled and only 5.7% of total vehicle miles traveled. It is interesting to note that 93.6% of total truck trips were 50 miles and less.

Of these truck trips of over 100 miles, Florida, for instance, reported 88.3% of such trips were within the state, 8.4% made to the adjoining states and 3.3% to other states. Pennsylvania trucks traveled 41.1% of truck trips within their state and 56.1% to adjoining states and only 2.8% to other states. New Hampshire showed that 17.7% of such truck trips were within the state, 63.5% to adjoining states, and 18.8% to other states. Lousiana showed 88.7% of truck trips of 100 miles or more were made within the state while 11.2% were made to adjoining states. Such road-use data would not seem to indicate that Federal control were needed.

The Commission's Report stated that the percentage for 32 states of loaded tractor-semi-trailers was 21% exceeding an overall width of 8 feet; was only 2.5% exceeding an overall height of 12½ feet and was 8% with an overall length of 40 feet or over. The weighted average for 36 states of cumulative percentage of loaded tractor-semi-trailers having a gross weight of 40,000 lbs. and over is only 5%. This would bear out that very few vehicles require excessive size and weight laws to operate. This is further borne out by the Report in that it stated 85 to 90% of all property carrying vehicles, including farm owned and urban vehicles are of 1½ tons rated capacity or less.

The Report emphasizes that "a given 'road', in the sense of a highway that bears a given name and number may differ materially in surfacing, width or other respects, one section or strip compared with another. These differences are in part an adjustment to the volume or character of traffic,

to soil or topographic conditions, or to the availability of native construction materials, in part a reflection of the relative age of the various sections, and in part an indication of differences in state policies or engineering concepts as to type of road suited to meet given needs." This statement within itself tends to show that the states have constructed their highways according to the needs of its citizens—not for commercial vehicle travel.

Safety on the highways is the basis of most highway legislation. Safety was the basis of the statement filed with the Commission on November 15, 1940, and the resolution passed by the A.A.M.V.A. meeting in New Orleans in September. It was stated that "the obvious objective of Federal regulation is that of increasing the sizes and weights of motor vehicles, it is submitted that public safety will thereby be jeopardized by reason of the psychological effect on motorists generally by the appearance on the highways of motor trucks of great size, particularly on those highways not designed to carry such traffic."

The Commission's report stated that "Grades and restricted sight distances tend to reduce the capacity of a given highway. Thus, the limited grade-ability of some vehicles reduces the speed of other vehicles, and restricts sight distances, lessen the opportunity to pass safely, owing to uncertainty as to what lies ahead. When both factors are present, congestion is particularly likely to develop." Quoting further from the report, "the greater the gross weight of a truck or combination, the poorer its ability to climb grades."

The Commission referred to the brake tests of commercial motor vehicles conducted by its Bureau of Motor Carriers which showed the poor performances of all types of such vehicles and states that "except for buses there appeared to be a decrease in brake performance as gross weight increased, doubtless owing in part to overloading." The Report added that the general opinion of the motoring public that larger commercial vehicles are a special hazard is to a "considerable extent - - - untested and is colored by inconvenience caused."

These references to safety are no doubt far more familiar to Motor Vehicle Administrators than to any Federal official or Department as evidenced by your resolution. I submit the "inconvenience" of the motoring public, representing some 27.5 million passenger cars is of far more importance than the operations of motor trucks, operating for profit over highway facilities owned by the states, built by the states and maintained by the states; and are far more imporant and due more consideration, than the intervention of the Interstate Commerce Commission with recommendations for Federal control of size and weights of commercial motor vehicles.

Again the plea of national defense is cited as the need for Federal Regulation. Every State issues special permits to motor carriers transporting national defense traffic when the need exists to exceed the legal limits. Kentucky, so frequently referred to as the bottleneck of highway transportation issued 876 permits between September 1 and October 31, to trucks hauling national defense materials. Such a plea is entirely without foundation for ample authority exists to permit trucks to exceed the legal limits when hauling vital defense materials.

The Public Roads Administration recommended an expediture of 458 millions of dollars for improvements on the strategic system of highways, consisting of 74,626 miles. This Agency also estimated the cost of raising a selected interregional system of 29,330 miles to high standards at $2,460,000,000 for the rural portion and $2,663,000,000 for the urban portion, this being about one-fifth of the

amount to modernize *all* main connection thoroughfares throughout cities.

The A.A.S.H.O. has estimated the cost of needed construction of main or principle highways as of January 1, 1940, was $3,945,105,000. The Commission, while recommending Federal control of size and weights of commercial motor vehicles designed to increase weights has made no specific suggestion as to how the payment is to be made of constructing the additional facilities required to carry the larger and heavier vehicles so inevitable under the Commission's recommendations if adopted by the Congress. As the primary highways require these huge construction costs, funds will be diverted from the important secondary highway systems, so vitally needed by agriculture and on which roads traffic moves to feed all modes of transportation.

The greatest investment that any of our states have made is in highways, streets and bridges. More than 31 billion dollars have been spent for such facilities and their maintenance since 1920. It is certainly the duty, responsibility and right of each state to protect its investment and its citizens in the use of these highways. Mr. Justice Sutherland speaking for the Supreme Court said:

"It is well established law that the highways of the state are public property and their primary and preferred use is for private purposes. * * * "

Therefore, it is the right of each state to say who and what is to use its roads. It may bar or permit, and to name the conditions, under which vehicles use its roads. The use of public roads is a matter of grace or privilege—not a given right.

The Supreme Court has stated that:

"Few subjects of State Regulations are so peculiarly of local concern as is the use of State highways."

Yet there is now pending before the Congress a bill providing that the Federal Government supercede this state right to govern the use of its highways. A bill which is designed to benefit a very small minority of highway users to the detriment of the general public and their safety.

Providing highway facilities and the regulation of their use is the principal and largest function of state government. The state is directly responsible to its citizens for the performance of its duties in providing safety on the highways.

No need exists for the Federal control of sizes and weights of commercial motor vehicles within the states represented here, a truck is permitted 18,000 pounds on the axle. A single unit weighing 20,000 pounds can move anywhere within the 11 states. A tractor-semi-trailer weighing approximately 40,000 pounds can likewise operate within the 11 state area.

As need arises and road conditions permit, such limits can be raised by agreement between the several states. Therefore, this right of negotiated agreement between several states in accordance with the needs of its citizens is now in danger simply by the passage of a brief law as has been recommended and is now pending before the Congress. As this phase of motor vehicle regulation is assumed by the Federal government it is only logical to assume that further powers in this field will be absorbed in due time, such powers being directed by those in places far removed from your state.

To best serve your respective states, it would seem most important that you inform the Congress, collectively and individually, that this power of regulating commercial vehicles must remain as a state function, if its property is to be preserved, and the safety of its citizens assured.

An original paper presented by P. H. Mathews, Asst. Regional Director, Association of American Railroads, before the Eastern Conference of Motor Vehicle Administrators in Providence, R. I., Nov. 1941.

TRAFFIC SIGNAL OPERATION UNDER WAR CONDITIONS

by PAUL L. GREEN

TRAFFIC signals in both urban and suburban areas are operated throughout the blackout in exactly the same way that they are normally operated with, of course, the exception that the signal lenses are covered with a thin metal mask which is pierced in the form of a cross.

The desirability of keeping signal systems in normal operation in time of war will be very readily appreciated by a consideration of the fact that where signals were necessary for efficient control and safety at a junction in peacetime when during the hours of darkness, both the junctions and the vehicles were brightly illuminated, they become absolutely essential under blackout conditions for the same purposes. Even in districts which have installed the so-called starlight lighting the argument still applies, as the permitted lighting is only of the order of .0002 foot candles.

In addition to the above, it has also been found to be imperative to install additional signal systems at junctions which, under peacetime conditions were safe without any control and at others which were manually controlled, either for the whole or part time. Some of the latter have, in fact, become death-traps for the controlling officers under blackout conditions and in spite of wartime difficulties, their signalization has had to be proceeded with, though it was considered unnecessary in peacetime.

With respect to the type of mask in use this was officially specified by the Home Office after exhaustive tests, under varying climatic conditions, between local authorities and the Royal Air Force and in which we cooperated.

The memorandum states that signals shall be kept in operation in time of war, but that each lens shall be completely masked with the exception of a cross pierced in the upper half of the mask. The dimensions of the cross are 1½ inches for each and with the lowest point of the bottom arm ½ inch above the center line of the mask. The width of the piercing is ⅛ inch.

The position of the cross was determined by the need to ensure the complete screening, by the signal visor, of the light emitted through the cross, from direct observation from aircraft, whilst the dimensions were determined by the need to prevent the signal light being reflected from nearby buildings and windows.

We have supplied many thousands of the masks which have proved to be very effective though initially we had some difficulty in designing a universal mask, suitable for any signal of our own and other manufacture. On investigation we found that there were some 5 or 6 different diameters of signal in use varying from about 7¾ inches to 8⅛ inches of aperature. In addition, there were as many different lens curvatures.

Our final design of mask was made suitable for fitting in the smallest diameter signal in use, and it is dished to fit the greatest curvature, the actual dimensions being 7⅝ inches diameter and the dishing on a 7⅛ inch radius.

The mask is pressed from .012 inch common black iron sheet, which is then finished by bonderizing and painting with matt black paint, the finish being for protection against corrosion and the avoidance of reflections. The mask is fitted on the outside of the signal lens by making a bed of putty all around the edge of the lens and its frame, pressing the mask into position on the putty bed, and finally sealing into place with a putty seal outside the mask rim.

This method of fitting was adopted for a variety of reasons, from which we might mention the following:

No work has to be performed on the signals in the way of drilling, cutting, tapping, etc.

The putty makes a light tight seal between the mask edge and the lens. It is also cheap and easily obtained.

When it became necessary to fit the masks this could be done by completely unskilled labor, in the minimum of time, and without necessity to open or disturb the signals.

The fixing is so tenacious that once the putty begins to set the mask must be destroyed to remove it.

This last point is very important in that the mask fixing is resistant to all weather conditions and apparently also to bomb blast. Blast which is sufficient to remove the mask also destroys the signal lamp.

The virtues of this masking system are that the masks can be obtained and stored in small space by the local authority prior to the outbreak of hostilities and they can be fitted in the minimum of time when the need arises. It is, however, agreed that it leaves something to be desired in respect to daylight visibility of the signals. Whilst they are highly visible by night they are not always easily seen in bright sunshine.

Several attempts have been made to overcome this disability and whilst it can be successfully achieved none of the methods proposed have the simplicity and rapid application of the existing mask.

Two of the methods, however, are given for information.

In the first, the power supply to the signal lamps is separated from that feeding the control unit and the lamp supply is taken to a suitable auto-transformer tapped at 30%. During the day the lamps are across the ends of the transformer and are accordingly fed with full voltage and glow at full brilliancy. At night time one connection is moved, either manually or by time switch to the tap, so that the lamps are fed at only 30% of full voltage and consequently glow at very low brilliancy.

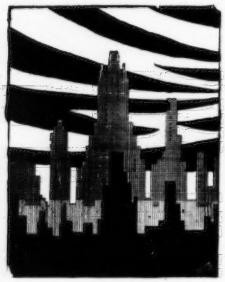
This method of operation is approved by the Authorities, but it often leads to difficulties when applied to complex signal systems and, particularly, where relays are operated in parallel with certain signal lamps and are only required to be operated when that lamp is glowing.

The second method requires a special mask and mounting frame, the mask being split and hinged across the horizontal center line. During daylight the bottom half of the mask is raised to disclose the whole of the lower half of the lens whilst when it is lowered at night only the cross is visible. It will, of course, be appreciated that in this system the hinged flap must be raised and lowered manually, at dawn and dusk, which involves someone visiting every signal face twice per day.

The one change of importance which has been made to a number of installations is the provision of a third face to existing two face signals, in order to provide the pedestrian with a signal directly ahead in whatever direction he may be moving, so that he shall always be informed of the traffic movements.

Finally it is also to be noted that it has been found necessary to install pedestrian-controlled signals at a few intersections and in certain straight-road stretches for pedestrian safety in the blackout.

An original report by the Engineering Dept. of the Automatic Telephone & Electric Co., Ltd., Liverpool, England. Submitted by Paul L. Green (Assoc. I.T.E.), Sales Mgr., Automatic Signal Corp., Norwalk, Conn.



Stop, Look and Listen

PERSONALS

George W. Barton, Dwight M. McCracken, and Wilbur S. Smith (Members, I.T.E.) have been inducted by the Federal Bureau of Investigation to teach traffic control measures in war time training schools for Police. This program is nationwide and details will be published in a future issue of TRAFFIC ENGINEERING.

1941 PROCEEDINGS

The Editors of the 1941 PROCEEDINGS of the Institute of Traffic Engineers have hit another high note in publications issued by professional societies. Included in this year's PROCEEDINGS are information and data of a comprehensive and precise character having far-reaching and timely application. Outstanding trends as visioned by leading traffic administrators are clearly established by factual approach. The specifications of traffic signal timing controllers offers a most important and valuable contribution in everyday practice of traffic control.

Emphasis is given to traffic defense, pedestrian protection, speed zoning, one-way streets and control of abutting property.

The arrangement and organization of the material contained in the 1941 PROCEEDINGS enables the reader to proceed logically from broad principles to detailed and precise specifications. This year's PROCEEDINGS is a tribute to the orderly processes of the Traffic Engineering profession and is highly recommended to everyone concerned with traffic control.

1942 ACCOMPLISHMENT

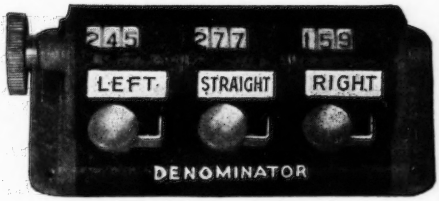
Under the untiring efforts and patient guidance of Robert A. Mitchell (Mem. I.T.E.), traffic engineering in Philadelphia has grown from a Division in the office of the Director of Public Safety with 22 persons to a full grown Bureau of the Department of Public Safety with a staff of approximately 84 members.

In 1941 Philadelphia's Traffic Engineer secured the transfer of 11 additional men to his Division and assumed control over the maintenance of traffic signals. This was real accomplishment in itself.

We now learn that Mr. Mitchell with the aid of the Director of Public Safety and the City Council not only raised the status of his Division to that of a Bureau but also has transferred to his Bureau 40 men from the Bureau

TRAFFIC COUNTING SIMPLIFIED WITH NEW TRAFFIC COUNT DENOMINATOR

Illustration of 3 unit Counter, classifying directions of travel



Other models with from 1 to 12 classified counting units mounted in horizontal line.

By simply pressing key one count is recorded in classified counting unit controlled by that key.

Touch method employed permitting operator to keep eyes on road at all times.

Quick reset returns all counting units to zero.

Counting units may be classified to represent direction of travel, different types of vehicles, state license plates, and other important classifications in traffic planning.

Now in use by City, County and State Highway Departments throughout the U.S.A.

Quick . . . Accurate . . . Efficient.

— WRITE FOR CATALOGUE —

THE DENOMINATOR CO., Inc. - 261 Broadway, N. Y. City

of Highways and 5 men from the Electrical Bureau. In addition 6 new positions for mechanics have been created and the Traffic Engineering Bureau of the Department of Public Safety of Philadelphia has taken over all the automotive equipment, storage yards, shops, machinery, equipment and supplies used in traffic signal, sign and painting work including the purchase of new equipment and supplies.

As Traffic Engineer, Mr. Mitchell is in full charge of the Bureau and all work connected with traffic control and safety in Philadelphia.

Mr. John F. Gallagher (Assoc. I. T.E.), present Traffic Signal Engineer, is Assistant Traffic Engineer.

To Bob Mitchell and his staff the members of the Institute of Traffic Engineers extend their congratulations.

FROM TRAFFIC TO AIR-RAID SIGNALS!

J. W. A. (Art) Bollong, (Mem. I.T.E.) Traffic Engineer of Seattle, Washington, has been appointed a member of the Communications Committee of Seattle's Civil Defense Commission as a result of his experience in signal work. His first action as a member of this committee was to form a technical sub-committee of electrical experts to pass on problems of communication. In a radio interview, Mr. Bollong reported that Seattle has installed a siren in the low spots or valleys of each of its 23 districts. The topography is utilized as a sounding or reflector board to reach every part of the city with the warning. Several small sirens are planned for the central business district. Tall

buildings create canyons and sound walls, and sirens will be so arranged as to carry the sound east and west and north and south through these canyons. Factories where the siren may not be heard are being equipped with preliminary warning lights from the interceptor command. Sirens will be augmented by steam whistles, public address systems, church chimes, police sirens spotted in various districts throughout the city. Tests on each siren will be made as soon as installed always at noon. Four separate systems of control are provided. One, master control from a central point; two, control in groups; three, manual control at each siren; four, low-wave two-way control with police cars.

TRUCK ROUTES

Traffic routes for trucks are helping to solve street congestion and business district traffic jams in at least a dozen cities, the American Municipal Association has reported.

Ordinances passed in Los Angeles and St. Paul set up comprehensive traffic route systems. Partial systems, which merely designate certain specified streets as truck routes, are in force in New York, Chicago, St. Louis, Minneapolis, Boston, Pittsburgh and San Francisco, among other cities. In Portland, Ore., and Houston, Tex., partial truck routing systems are in effect through voluntary action of commercial trucking companies.

HERE AND THERE

Wisconsin has established several hundred miles of "No Passing" zone markings.

Nevada has just completed a new sign production plant which cuts costs 25%. Further economies are being obtained by using clear mica ground fine and sprinkling on freshly painted centerlines in place of glass beads. Gypsum crystals are also being considered for use on shoulders as a roadside delineator.

Ohio is preparing a procedure for speed zoning highways.

Colorado is planning a continuous volume counting schedule to cover the entire state.

Washington (state) is contemplating an extensive program of speed zoning.

Providence, R. I., recently completed the signing of a midtown bypass using large destination signs with 6 inch minimum letters.

PARKING LOTS IN RESIDENTIAL DISTRICTS

The City Commission of Miami, Florida, has recently adopted a Conditional Accessory Parking Lot Ordinance, submitted by the City Planning Board. Frank F. Stearns, Executive Secretary, writes as follows: "This amendment provides that residentially zoned lots may be used for parking where adjacent to and accessory for existing business uses in B-1 (Restricted Business) zones and more restricted districts, but which may be located in any zone, and for churches, schools, apartment houses, hotels, rooming houses, sanitariums, parks, and playgrounds. Passenger cars only shall be so parked and no charge shall be solicited or accepted. No repair work, servicing, or sales shall be allowed. Parking for business uses, such as restaurants, grocery markets, etc., shall be limited to the hours between 8 A.M. and 10 P.M., with further restrictions for Sundays. No sign shall be exhibited on any residential side of such lot. No storage or depositing of boxes and other materials shall be allowed on any part of such premises. Parking area shall be paved with dustless surface. Concrete block or brick wall must be erected five feet from lot line adjoining residential lots, and back from residential street on building setback line. Area outside of wall must be sodded with grass and maintained. Permits to use residential property shall first be secured from Zoning Division, and shall be valid for one year at a time, renewable only where conditions have been fully complied with. On complaint claiming nuisance, and after all interested parties shall have first been given opportunity to be heard, such permit may be revoked by City Commission. With these safeguards we believe residential values will be fully protected."

American Society of Planning Officials — News Letter, December 1941.

MADISON "HOODS" PARKING METERS TO INDICATE "NO PARKING"

When motorists see a red hood on parking meters in Madison, Wisconsin, they no longer reach for a nickel to pay, since it is a sign they cannot park at all.

The red hood carrying the "No Parking" warning is put over the top of parking meters when areas must be kept free for traffic during weddings, unloading of merchandise and in special traffic rushes, according to the American Municipal Association.

The hoods, devised by the police department, cover the entire head of the meter and are tied at the lower end.

ELIMINATION OF RAILROAD CROSSINGS

It is well established that the elimination of grade crossings is encompassed within the police power of a state. This power is so absolute that a state, through its appropriate agency, can compel a railroad to pay the entire cost of any and all grade-crossing eliminations. Should all the states direct the elimination of all grade crossings at the exclusive expense of the railroads, which while unlikely is theoretically possible, bankruptcy might be the harvest.

The Supreme Court of the United States said: "If it reasonably can be said that safety requires the change, it is for them (public utility commissioners) to say whether they will insist upon it, and neither prospective bankruptcy nor engagement in interstate commerce can take away this fundamental right of the soverign of the soil."

It is hardly likely that anyone would want the elimination of grade crossings if, inevitably, its concomitant would be railroad bankruptcy.

In New York State the railroad pays by law the amount of the net benefit it derives from an elimination (limited to a sum not to exceed 15 per cent of the expense of improvements not an essential part of the elimination). It is a most difficult task to determine the net benefit to a railroad from an elimination. What factors make a benefit? What factors must be discounted to arrive at a net benefit?

Dispensing with the services of grade-crossing watchmen is a benefit, but what sum would be adequate to earn the wages of the watchmen is difficult to determine. The rate of interest does not remain static and the length of the accounting period is a problem.

The avoidance of damage claims from accidents is a benefit, but is accident experience of the past a criterion of the future? Should we strike an average, per year, and capitalize that sum? If striking a yearly average is the basis for the solution, should that average be computed from the past accident experience at that crossing alone, or should the past accident experience of the railroad at all crossings be considered? Incidentally, how many years back should we go to satisfy the requirements of the word "past"?

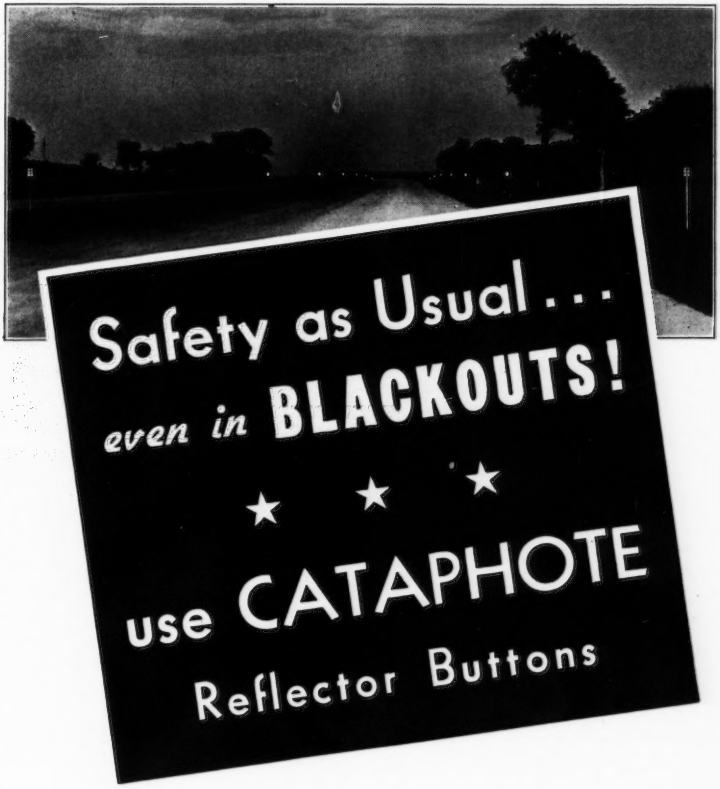
The elimination may require a new station of modern construction to replace one of frame construction which formerly served the purpose. This is a factor deeply interwoven with *net* benefit.

Replacement of depreciated and worn materials with new such as rail caused by a relocation of the railroad required by the elimination is a benefit difficult to measure.

Court cases uniformly hold that while elimination of danger of collision between vehicles and trains is one of the benefits to be considered in apportioning costs, these matters are not controlling.

The problem will be met as a practical matter with the discretion of the commissioners assessing the benefits and if the amount apportioned to the railroad cannot be shown to be unreasonable, it is likely that the courts will rule that the commission arrived at a fair ratio.

Condensed from an article by Abraham Dollinger in PUBLIC UTILITIES, December 18, 1941.



Traffic engineers today must face the blackout problem—and this is particularly important in coast areas and in localities near army camps. In your job of keeping highways **safe** for day and night traffic . . . you'll find Cataphote Reflector Buttons an extremely effective help. These Reflectors are not visible to aircraft observers—yet they're highly visible to motorists. Ideal for nighttime center lane markers . . . road-edge delineators . . . and reflectorized STOP, SLOW, CURVE and similar signs. For permanent reflection and greater safety . . . call on Cataphote. Write for more facts.

WESTERN CATAPHOTE CORP.
TOLEDO, OHIO
★

MINIATURE RECORDS

By micro-filming its motor vehicle records, the Motor Vehicle Division of the Michigan Department of State has obtained an efficient, fireproof, space-saving filing system.

With this new photographic method of preserving automobile titles and registration records, the department has been able to destroy tons of transferred title records kept on file for six years as required by Michigan law. The state saves salary expenses since the new micro-film records require less personnel for efficient operation.

Each new application to the department is now photographed on micro-film. When reference is to be made to any record, its miniature photograph is "blown up" by a projecting machine for easy inspection.

CONNECTICUT REGISTERS BLUEBLOODS

Connecticut State Police are using an "alcoholometer" for analyzing the alcohol content of the blood of motorists facing charges of driving while intoxicated.

The alcoholometer resembles a table model radio in size and contains a removable colorimeter tube coated with a colorless starch solution. The person undergoing the test must breathe into the tube. The exhaled air passing through the tube turns the chemical solution blue, and a meter actuated by an electric eye registers in hundredths of one per cent the exact amount of alcohol in the subject's blood. Direct reading of the percentage of alcohol in the blood can be translated in terms of "alcohol influence" as established by the American Medical Association.

ON THE SHELF

TRAFFIC ENGINEERING AS APPLIED TO RURAL HIGHWAYS. Discussion by Mesrs. Nathan Cherniack (Mem. I.T.E.) and Park H. Martin of a paper by Milton Harris published in Proceedings A. S. C. E., May, 1941. The discussion emphasizes the operating factors of highway building over the structural. Economic justification of highway improvement based only on reduced highway and vehicle operating costs is slated for "drastic revision" warns Mr. Cherniack. Proceedings A. S. C. E. Vol. 67:10 Dec. 1941 pp. 1879-1885.

WHITE GUIDE TO SAFETY, an illustrated pamphlet with plans, specifications, and applications of New Jersey Highway Department's light reflecting curbing. Published by Universal Atlas Cement Co., 135 East 42nd St., N. Y. C. 30 p. free.

SCHOOL BUS SAFETY by South Carolina State Highway Dept. contains a bus driver program, safety requirements, and education and control of the children. Free.

PROCEEDINGS OF FIFTEENTH ANNUAL MEETING NATIONAL ASSOCIATION OF MOTOR BUS OPERATORS held in Chicago, Illinois, September 17-19, 1941. This booklet contains the full stenographic report and all addresses.

1941 PROCEEDINGS OF THE WESTERN SAFETY CONFERENCE contains excellent disertations on traffic relating to National Defense, public safety, city planning, highway lighting, parking meters, and driver training. President J. W. A. Bollong (Mem. I. T. E.) Traffic Engineer, Seattle, Washington, Sept., 1941.

DEVELOPMENT OF TRANSPORTATION IN THE U. S. by J. E. Teal, Transportation Engineer, C. & O. Ry., Richmond, Va., published in Proceedings of A. S. C. E. Vol. 67: 10, Dec. 1941, pp. 1827-1940. A far-reaching discussion of the economic effects of the various systems of transportation on people and the national economy.

THE APPLICATION OF RANDOM SAMPLING TO FISCAL STUDIES by Thomas M. C. Martin, Ass't Highway Engr. Economist, U. S. P. R. A., Public Roads, Vol. 22:9, pp. 199-208. A practical application of sampling methods and procedures to the collection of local financial statistics.

MOTOR CARRIER CASES. Decisions of the Interstate Commerce Commission, Vol. 27 Nov. 1940—Feb. 1941, 972 p. Cloth $1.75 U.S. Gov. Printing Office, Washington, D. C.

OHIO HIGHWAY PLANNING SURVEY—1940: A non-technical report treating the physical and economic aspects of Ohio's highway transportation problems. Ohio Highway Planning Survey, 600 Ohio-Hartman Building, Columbus, Ohio. D. F. Pancoost, Chief Engineer, 120 p.

INCREASING TRAFFIC VOLUME ACCOUNTABLE FOR PEAK TRAFFIC ACCIDENT EXPERIENCE 1941. An analysis of traffic accidents for the first 6 months of 1941 in the light of volume increases. John T. McCarthy, Commissioner, Connecticut Department of Motor Vehicles, Traffic Topics, Sept. 1941.

REGULATION AND LICENSING OF AUTOMOBILE PARKING LOTS; SPECIMEN ORDINANCES, United States Conference of Mayors, 730 Jackson Place, Washington, D. C., October 1939, 7 p. plano.

A PARKWAY PLAN FOR THE CITY OF LOS ANGELES AND THE METROPOLITAN AREA, Department of City Planning, Los Angeles, 51 pp. mimeo., maps. Includes plans for a radial parkway, belt route, by-pass and cross-town routes across the city and region.

PROCEEDINGS OF THE THIRTEENTH NATIONAL ASPHALT CONFERENCE, 1940, published by the Asphalt Institute, 801 Second Ave., N. Y. C., 238 pp. Contains valuable information pertaining to roads and national defense with especial reference to military requirements, elimination of bottlenecks. Separate reprints available.

PUBLIC CONVENIENCE AND NECESSITY

Poughkeepsie, N. Y., has adopted an ordinance permitting the removal of vehicles of any kind from its streets during a storm or while the streets are being cleaned of snow or other obstructions. During these days of potential air raids it is essential that a free passage be provided for emergency vehicles at all times.

FREE PARKING

Plymouth, Michigan, (5,350 pop.) has opened a free 100-car municipal parking space behind main street stores and plans a second lot of 150-car capacity. The $9,000 cost of land and development was paid from general funds. Cost, supervision 14 hours a day and lighting is estimated at $1,000 a year. Penny parking meters are planned for the main business street to encourage use of the lots.

MID-BLOCK POLICE POSTING

A two-year police traffic study recently completed by the Chicago Park District Police Department showed that police officers stationed at intersections with "Stop and Go" signals were hampered in their duties and traffic tieups and accidents were occasioned by information seekers. As a result traffic officers are now stationed in the middle of blocks where they can control parking, passing, U-turns, answer questions and still handle intersectional violations. Accidents and delays are thereby reduced, and motorists drive by the traffic signals.

The Board of Direction of the Institute of TRAFFIC ENGINEERS requests the Editor of TRAFFIC ENGINEERING to announce that the present volume number of the Magazine will be continued through September, 1942. Each new volume hereafter will begin with the October issue.

LOOKING AHEAD

February 18-20, Ann Arbor, Mich.

Conference on Highway Engineering. Sec. R. L. Morrison (Mem. I. T.E.), University of Michigan, Ann Arbor, Mich.

February 22-24, New Orleans, La.

4th Annual Southern Safety Conference, Roosevelt Hotel.

February 25-27, Philadelphia, Pa.

Association of Highway Officials of Atlantic States (Benjamin Franklin Hotel). Sec.-Treas. A. Lee Grover, State Highway Dept., Trenton, N. J.

March 2, Week of, Memphis, Tenn.

American Road Builders Association. Eng.-Dir., Charles M. Upham, 952 National Press Bldg., Washington, D. C.

March 3-6, New York, N. Y.

13th Annual Safety Convention and Exposition, Greater New York Safety Council, Hotel Pennsylvania.

DO YOU KNOW

In May, 1940, New Hampshire Motor Vehicle Department inspected 98.3% of its registered vehicles and found that approximately 62.0% required adjustments before approval stickers were issued.

Silvered glass reflectors are 10 per cent more efficient than highly polished aluminum which is needed for defense.

Oil experts say that curtailing the production of tetraethyl lead will lower the octane rating and thus cause an increase of 10 per cent more gasoline to cover the same distance or an annual increase of 1,250,000,000 gallons of gasoline.

The volume of traffic and the absence of any sort of effective street markers will be the determining factors in the selection of sites for the first installations of Houston's 5,000 permanent street markers.

California has recently enacted legislative changes in the state motor vehicle code that should be of great interest to all state traffic engineers.

The Common Council of Detroit has ruled that automobiles impounded by the police will not be released until proved mechanically safe by the Motor Transport Division of that city.

Motor fuel consumption on American highways in 1940 totalled 22 billion gallons—an increase of 6 per cent over 1939.

UNDERGROUND METROPOLITAN PARKING

The serious parking problem in downtown San Francisco has lead to the formation of an organization fostered by the city and subscribed to by interested merchants for developing underground parking beneath Union Square. Four stories underground will accommodate 1,700 cars. When a loan from the RFC and subscriptions by local merchants is retired from income, the property passes to the municipality. In the meantime the city, which owns the site, is paid $5,000 a year and taxes of about $13,000.

Bureau of Urban Research, Princeton, N. J.

SUPER REFLECTORS FOR SUPER HIGHWAYS

Grotelite Delineator Equipped with 3" diameter reflectors. Can be attached to any size angle post

The new Grotelite plastic reflector answers an old reflection problem, i.e., the need for a reflector possessing intense reflecting qualities at extreme angles. This new invention operates upon the principle of total reflection. Light incident upon the device is reflected back to the source through a VERY wide range of angles on one side of direction of approach but through a relatively narrow angular range on the other side. Grotelite reflectors are thus adapted to the actual conditions encountered along the highways.

They offer the distinct advantage in reflecting at great distances while still remaining visible almost up to the time the vehicle passes it. The entire reflecting area returns light even at extreme angles.

A small indicating arrow on the face of each lens points the direction to the road at which the reflectors operate at maximum efficiency. The front faces of the reflectors are smooth.

The delineators illustrated are streamlined and of extremely rugged construction.

Specify Grotelite reflectors for greater performance at minimum cost. Send for catalog.

Grotelite Bridge Signal or Delineator 3" dia. reflector

MANUFACTURED BY

THE GROTELITE CO., INC.

BELLEVUE, KY.

ROCHESTER'S ANNUAL TRAFFIC SURVEY

The Rochester Engineering Society made its 15th annual traffic survey on April 15, 1941 with the assistance of the Boy Scouts, and published the report through the cooperation of the Real Estate Board of Rochester.

It consisted of parking, pedestrian and cordon counts and traffic flow studies showing average conditions. The results were:

There was a decrease in number of cars in "No Parking" zones. This was due to elimination of parking because of bus laws. There was an increase in the number of cars parked in the business district, both in the street and in private parking stations, the total parked cars being larger than ever before. The maximum capacity of private stations increased while the vacant parking spaces in the streets diminished.

All but one bridge showed a considerable increase in traffic over 1940.

Pedestrian traffic was 1% higher than for the preceding year.

The inner Cordon Count showed an increase of nearly 20% in traffic over that of 1940.

The recommendations are as follows:

Before installing parking meters the question be given a thorough study and careful consideration. If such meters are installed, it is recommended that they be installed only at points where their use will not interfere with the free flow of traffic and that an amount equal to the amount of revenue received from the meters be spent each year to secure needed traffic services and devices.

As fast as time and finances permit that a uniform signal system be effected in Rochester and that the amber light follow the change from red to green but not the change from green to red. By this sequence stealing the signal and the consequent number of traffic accidents is greatly reduced.

High shrubbery at street intersections and on all streets between curb and sidewalks be trimmed or removed.

Steps be taken by the Common Council to limit the loading and unloading of commercial vehicles on heavily traveled streets to hours when such operations will not interfere with the flow of traffic. Where it is possible for trucks to load and unload at the rear of establishments, they should not be allowed to hamper traffic by using the front entrance.

TAXICAB REGULATIONS

There is little variety in methods used by cities in regulating taxicabs if a study of 32 Minnesota cities is indicative of cab control methods used generally throughout the country, according to information to the American Municipal Association.

Regulatory methods used most commonly by the Minnesota cities include limitations on the number of cabs, use of license fees, requirements as to bonds and liability insurance for passenger protection.

Eight of the cities studied limit the number of cabs. Two impose the limitation on a population basis and two through a blanket limit. Three cities require a council declaration that public convenience requires a new license before one will be issued.

License fees usually are based on the vehicle itself or its seating capacity.

Taxicab operators are usually required to post a bond or carry public liability insurance as protection for passengers or others who might be injured through operation of the cab. Minimum protection varies from a $2,000 coverage for a single injury and $2,500 for all liability, to $10,000 for a single injury and $50,000 total liability. Required protection for property damage runs up to $5,000.